

vidual practice. In all of them attempts at union by the first intention, are stated to have been made.

<i>Surgeons.</i>	<i>No. of Observations.</i>	<i>Proportion of Deaths.</i>
Dupuytren,*	29	1 in 3
Roux,†	—	1 in 3
Hyp. Larrey,‡	57	1 in 6
Dubois,§	28	1 in 9

The unfortunate termination of amputations in France, is attributed, by their surgeons, in the generality of cases, to phlebitis and purulent absorptions. For a long period this termination was thought to be very rare in this country, but post-mortem examination has made known the existence of it in many of the deaths that took place with us, and from all the information I have been able to obtain, I am led to believe that it occurred in the majority of them.

Philadelphia, June, 1838.

ART. VI. *Cases of Disease of the Heart, with Observations.* By
EDWARD HALLOWELL, M. D.

CASE I. *Warty Vegetation of Semilunar Valve of Pulmonary Artery, occurring in a child six months old; Hypertrophy of right Ventricle; dilatation of right Auricle; Cyanosis.*—Emeline Whelan, ætat six months, had, from birth, been more or less affected with difficulty of respiration, and latterly much subject to cough. During the paroxysm of cough, the face became suffused, and the nails and ends of the fingers cyanosed. I did not see her until after her death, when I was requested to make the autopsy, by Dr. Elkinton, who was called to visit her in her last moments.

Autopsy, November 17, 1834.—Exterior. Body well formed; embonpoint considerable; no œdema of either upper or lower extremities; fingers curved inward, and of a purplish colour.

Head not examined.

Thorax. Lungs perfectly healthy, not engorged in the slightest degree, of a light pink or rosy hue, and perfectly crepitant throughout; mucous membrane of trachea and bronchial tubes slightly injected; pleura perfectly healthy, cavity containing no serosity; *heart*

* *Legons Orales*, Tom. IV.

† *Mem. et Observ. sur la Réunion.*

‡ *Sanson. de la Réunion des Plaies.*

§ *Ibid.*

quite hard to the touch, its upper surface very convex, much more so than usual, and covered with veins in a state of enlargement; length of the heart, measured from apex to root of aorta, about two inches; tranverse measurement, rather more than two and a half; right ventricle enormously hypertrophied, there being scarcely any cavity left (concentric hypertrophy); walls about five lines in thickness; septum six and a half or seven; those of left ventricle about two lines; cavity of natural size; diameter of aorta double that of pulmonary artery, the orifice of which was almost entirely obliterated by a warty excrescence, arising from the middle semilunar valve upon its under surface, and extending to the others, to which it adhered. The external surface of this vegetation was lobulated, having a warty appearance, resembling very much a small raspberry, though less regular in its conformation; presenting, when cut into, an almost cartilaginous hardness, and adhering very strongly to the surface of the valve. The obstruction of the passage of the blood from the right ventricle through the artery was so great, that a silver probe passed with some difficulty; right auricle greatly dilated, its capacity being more than double that of the left; greatest thickness of its parietes, one line; that of the left, half a line; tricuspid and mitral valves healthy; semilunar valves of aorta healthy; coats of pulmonary artery appeared to be thinner than natural, having about the same thickness as the walls of the left auricle at their thinnest part; foramen ovale patulous, opening about three lines in diameter; pericardium perfectly healthy.

Abdomen. Liver greatly enlarged, occupying one-third of the abdominal cavity; on cutting into it, exudation of black blood in considerable quantity.

Other organs not examined.

Remarks.—The above case is interesting from its extreme rarity. I am not aware of the existence of another resembling it. M. Louis, in his Memoir "*Sur la Communication des Cavités Droites et Gauches du Cœur,*" has collected nine cases in which there was contraction of the orifice of the pulmonary artery, and given the details of one which came under his own observation in the wards of La Charité. Another is reported in the work of MM. Bertin and Bouillaud; and a few isolated cases may be found in the medical journals; but in all these cases, with one or two exceptions, of a somewhat doubtful character, the contraction was the result of malformation, rather than of valvular disease. The general signs, as well as the post-mortem appearances, were very similar in all of them. In most, if not all, the right auricle was found hypertrophied and dilated, and

the walls of the right ventricle enormously thickened, so as to leave scarcely any cavity; the contraction of the pulmonary orifice arising either from a diminution of its calibre or the existence of a fibrous zone or diaphragm with an opening in its centre. The physical signs were not noticed, or very imperfectly, except in the case of M. Louis. In this case a strong *bruit de soufflet* was heard in the anterior part of the chest, becoming louder as the ear approached the sternum. It is to be regretted that no opportunity was afforded of examining these signs in the case I have detailed.

CASE II. Disease of the Heart, illustrating the cause of the second sound.—This was a patient of my friend Dr. Ashmead, who requested me to see her with him. The following is the note of the case taken at the time of my visit. It was the only one I paid her during life.

May 6, 1835. Mrs. S—, ætat 45; complexion very pale. Three years ago, on lifting a tub, experienced violent pain along the sternum; since then affected with palpitations, arising from slight causes; the entrance of a person into the room gives rise to them, and they are frequently attended with violent pain under the sternum; countenance haggard; eyes wild. When suffering from these attacks, the whole system is more or less affected; the breathing becomes laborious, and she is obliged to lie down in bed. No blueness of lips; apex of the heart lower down than natural, and more to the left (between the sixth and seventh ribs); impulse considerable; cardiac region flat on percussion; first sound duller than natural; second sound replaced by a *bruit de soufflet*, heard loudest under the sternum, at its upper part; heard also at its base and above the clavicles.

I did not see her again until the 15th of December following, when I was invited to assist at the autopsy.* On the evening previous, she

* For a more minute account of the previous history and symptoms of this case, I am indebted to the kindness of Dr. Ashmead, who furnished me with the following note:

"Mrs. S— was first seized, in 1830, with an acute and violent pain about the region of the heart, whilst suddenly lifting a tub of water. She had again a sudden attack of the same kind one year after. My attention was first called to her, in reference to the disease of the heart, in March, 1835.

Symptoms. Sense of acute pain behind the sternum, lasting two, three, and sometimes ten or fifteen minutes, produced by the least surprise, joy, agitation of mind, or the slightest exertion, especially a quick motion of the hand, or lifting the arms high; followed by palpitation, lasting four or five minutes, when the pain behind the sternum was subsiding. This pain commences behind the inferior third of the sternum, runs up as high as the upper third, and then outwards and up along the pectoral muscles, the inner side of the forearm, and hands of both extremities to the finger ends, with a tingling pain. It is most severe behind the

had put her grandchildren to bed, as usual, when she was suddenly seized with a sense of suffocation, attended with great anxiety and distress, and died in half an hour, at 10 P. M.

Autopsy, December 15th, 1835.—Present, Drs. Ashmead and Hallowell.

Exterior. Embonpoint considerable; no œdema of the feet or ankles; abdomen distended.

Head not examined.

Thorax.—About two pints of serosity in cavity of right pleura, a small quantity in left; lungs on both sides engorged, and, with the exception of a small portion of the upper lobes, infiltrated with serum; the quantity of serum so considerable as to distend them to double their size when in a state of collapse; no tubercles; heart nearly double its ordinary size, hypertrophied and dilated; whole of anterior portion of right ventricle, and upper part of left, covered with fat, a line and a half or more in thickness; great quantity at origin of large vessels, where it is about four lines in thickness; length of heart from apex to root of aorta about four inches and a quarter; greatest circumference, measured one inch from root of aorta, nine inches and a half; posterior face much arched; thickness of left ventricle, measured half an inch from origin of aorta, nine lines; a little below the middle of ventricle, two inches and a half from root of

sternum, very severe behind the inside of the elbow, and less so in the hands; difficulty of breathing during the attack very great; pulse tense, during the absence of the paroxysm regular, ranging from 80 to 90, slightly intermittent when agitated, but only for a few minutes; appetite natural; very slight cough; lies with equal ease on either side; decubitus on the back produces shortness of respiration and sense of constriction or drawing behind the sternum; face pale; slight œdema of feet; impulse of heart greater than natural; cardiac region flat over a much larger space than usual; apex of heart felt below the sixth rib, on a vertical line descending from anterior fold of axilla; feels a sense of beating in the back between the shoulders; much beating also at the epigastrium.

Sounds of heart. First sound appears duller than natural, and is synchronous with the impulse of the heart; second sound consists of the *bruit de soufflet*, or a kind of whizzing noise, accompanied in its first half with a very distinct *sifflement*, or a sound approaching to whistling. This was heard only behind the sternum. The *sifflement* was heard over the region of the heart, a short distance on each side of the sternum, and under the clavicles. The treatment consisted in general and local depletion and blisters, diuretics, purgatives, and antispasmodics, with a regulated diet.

June 1st. Condition about the same; at times appears a little better; pulse 92.

December 1st. Attacks more frequent, arising from slighter causes, and of longer duration. She is always worse during the flow of the catamenia, which have not yet ceased.

14th. Had three attacks to-day, and died in the night very suddenly."

aorta, six lines, exclusive of columnæ carneæ; thickness at apex three lines; thickness of septum seven lines; diameter of left ventricular cavity, at its middle, one inch and three-quarters; greatest thickness of walls of right ventricle three lines; cavity not sensibly dilated; tricuspid valve healthy, except the lower margin of the portion attached to the anterior wall of the ventricle, in which there is a slight ossific deposit; transverse diameter of right auriculo-ventricular opening about fourteen lines, of left idem; slight cartilaginous deposits at base of mitral valve, and one or two at its fringed extremity, not sufficient, however, to interfere in any degree with its functions; parietes of right auricle thin, appearing in one point to consist only of pericardium; cavity not sensibly dilated. Walls of left auricle hypertrophied; thickness a line and a half; cavity of natural dimensions, except the appendix, which is double the usual size. Semilunar valve and coats of pulmonary artery healthy; thickness about a fourth of a line; aorta dilated as far as its arch; inner surface rough, with numerous deposits of atheromatous matter beneath its inner coat; transverse measurement of aorta slit up at its origin (approximately) three inches and a quarter, of pulmonary artery one inch and three-quarters. Semilunar valves of aorta puckered, cartilaginous, and shrunk to about one-half their natural dimensions; they may be pushed upwards and downwards to a certain extent, by the finger, but are totally inadequate to perform the office of valves, leaving a large space between them, through which regurgitation must of necessity have occurred; pericardium contained about two ounces of serosity.

Other organs not noted.

Remarks.—The immediate cause of death in the above case is to be ascribed to the sudden and extensive serous engorgement of the lungs; but the observation is chiefly interesting, as affording an illustration of the cause of the second sound. The sounds of the heart have of late years attracted very considerably the attention of pathologists, and various opinions have been expressed as to the manner in which these sounds are produced. Laennec supposed the *second* sound to be caused by the contraction of the auricles, but the fallacy of this idea was successfully shown by the late Dr. Turner, of Edinburgh.* Since that period numerous hypotheses have been advanced, but the opinion now generally received is that based upon the experiments of Dr. Williams,† who attributes the second sound to the reflux

* Edinburgh Medical and Surgical Journal, Vol. III.

† Williams on Diseases of the Lungs and Pleura. Fourth edition.

action of the blood upon the semilunar valves of the pulmonary artery and aorta. These experiments have been since repeated and the results confirmed by a committee appointed for the purpose, a report of which was made at the meeting of the British Association in Dublin.* Several cases also confirmatory of these views, and analogous to the one above detailed, are published in a very highly interesting and well written thesis, by M. P. A. Guyot de la Guerche,† an essay in every respect worthy the attention of pathologists.

The causes which give rise to an imperfect closure or patulous state of the aortic valves, are stated by M. Guyot to be four in number, namely: fibro-cartilaginous, cartilaginous or bony transformation of the whole of the valves. 2nd. Partial destruction of the free edge of the valves or of their faces, which become reticulated. 3d. Rupture of one or more valves. 4th. Dilatation of the aorta, extending as far as its origin, and thus rendering the valves incapable of performing their functions. The symptoms observed in the four cases which came under the observation of M. Guyot correspond very closely with those observed in the case I have reported, as do also the post-mortem appearances in the only instance in which he had an opportunity of examining them. The former are stated to have been as follows, and when united, may be considered characteristic of the lesion in question, namely: 1st. Absence of the second sound, which is replaced by a *bruit de soufflet*, very sensible in the heart itself, in the descending aorta, the carotids and subclavian arteries. 2nd. Visible pulsations of the arteries of the neck, the head, and the upper extremities. 3d. Pulse strong, frequent, and vibrating. The following are the physical signs in the case which terminated fatally: dulness over the præcordial region, principally at its inferior part; pulsation of the heart visible to the eye; impulse strong; first sound dull and of short duration; absence of the second sound, which is replaced by a *bruit de soufflet*, very strong around the base of the heart, and extending along the sternum. On listening attentively toward the lower part of the sternum, a double *bruit de soufflet* was heard, one appearing to be isochronous with the pulse, the other succeeding it; pulsation of carotids and subclavians very sensible to the eye, isochronous with the pulsations of the heart; presenting also a *bruissement* very remarkable when the finger was lightly applied to them; a *bruit*

* American Journal of the Medical Sciences, May, 1836.

† De l'insuffisance des Valvules Aortiques, par P. Aristide Guyot de la Guerche: Paris, 1834. See also Corrigan upon the same subject, Edinburgh Medical and Surgical Journal, 1832.

de soufflet was also readily distinguished. At the autopsy, the heart was found much enlarged, the pericardium containing a small quantity of serosity. *The valves of the aorta were thickened and transformed into a tissue, tough and elastic, very analogous to cartilage, leaving between them a triangular opening, having an area of thirty-two square lines, through which the blood must have regurgitated during life.*

Patescence of the aortic valves, although not of frequent occurrence, is now and then met with. I have seen several cases of it; but the above is the only autopsy which I have had an opportunity of observing. Like the one preceding, it is imperfect, inasmuch as little or nothing is said respecting the condition of other organs than those primarily affected, which should always be described with care; but this, in the present instance, could not be done with sufficient accuracy, as indeed not unfrequently happens in private practice. The diagnosis is a matter of considerable importance, as, without it, the practitioner may do much harm by the injudicious use of digitalis and other sedative remedies.

CASE III. *Patescence of the Foramen Ovale.* August 30, 1837.—Was requested by Dr. Jewell to make the autopsy of a child two days old. The infant was born on Sunday morning; no accoucheur was present at the time, and the child remained attached to the cord about fifteen minutes. On the arrival of Dr. Jewell, the woman was flooding, there being an hour-glass contraction of the uterus, with retention of the placenta; the hand was introduced, and the placenta removed, when the hemorrhage ceased. The appearance of the child, immediately after delivery, was not particularly noticed, but subsequently it assumed a livid tint; its respiration was much embarrassed, and it at length died on Tuesday night, two days after birth, having previously vomited a considerable quantity of blood.

Autopsy.—Wednesday, August 30th, 1837.

Exterior.—Body of middling size, and well formed; deep lividity of lower extremities, soles of the feet having a dark purple or inky colour; face livid, but much less so than lower extremities; back and abdomen mottled; upper extremities natural in appearance, except the tips of the fingers, which are bent and have nearly the same dark colour as the toes. This healthy appearance of the upper extremities has been assumed only since death, they having been previously of the same dark hue as the lower.

Head not examined.

Thorax.—Lungs engorged throughout, right rather more than left,

resembling the first stage of pneumonia; colour dusky-red; tissue somewhat condensed and imperfectly crepitant; pleura healthy; pericardium healthy, containing no serosity; two large ecchymoses, one on the left and the other on the right side of the heart, at its base, beneath the pericardium; slight ecchymosis posteriorly beneath lower margin of auricles; slight engorgement of coronary vessels; length of heart from apex to origin of pulmonary artery fourteen lines; breadth, midway between the two points, twelve and a half lines; width of pulmonary artery three lines and a half; aorta three and one-fourth; cavity of ventricle of natural size; greatest thickness of walls of same, and also of septum, two lines; cavity of right ventricle of natural size; walls a line in thickness; mitral and tricuspid valves healthy; orifices of the pulmonary artery and aorta perfectly natural; septum ventriculorum perfect; auricles healthy, neither hypertrophied nor dilated; foramen ovale patulous, arising not from imperfect closure, but from original malformation of the valve; instead of two laminæ, an upper and lower placed in juxtaposition, there are two folds, so thin as to appear to be formed almost solely of the lining membrane of the auricle, attached to the inferior and anterior margin of the opening, and diverging from each other; the extremities of their posterior edge or border, or that inserted in the corresponding portion of the auricle, being about three lines apart. The opening formed of the upper or concave margin of these folds, and thick margin or edge common to the two auricles, is about two lines in diameter; mucous membrane of the *stomach* slightly red from imbibition, and containing a considerable quantity of spumous blood; *colon* distended by meconium of a greenish grass colour; mucous membrane, as well as that of small intestine, perfectly healthy; *liver* of ordinary size, right lobe congested, a small quantity of black blood exuding on being incised; spleen of a slaty colour, and not enlarged; *kidneys* healthy.

Philadelphia, April, 1838.

ART. VII. *Amputation at the Hip Joint.* By DANIEL BRAINARD,
M. D., of Chicago, Illinois.

In January, 1837, I was called to Michael Donnahue, ætat 25 years, a labourer, having a large tumour of the left femur.

He gave me the following history of his disease:—Nine months previously he had his left femur fractured, about six inches from its